

CLAIMS

The invention claimed is:

1. An automatic exterior light control, comprising:
an image array sensor, said image array sensor comprising an array of pixel sensors;
and
a controller configured to generate an exterior light control signal, said controller is further configured to generate a rate of change of said exterior light control signal that is a function of one of the variables selected from the group comprising: a current inclination angle of a headlight, an estimated range of an oncoming vehicle, an estimated range of a leading vehicle and an ambient light level.
2. An automatic exterior light control as in claim 1 wherein said exterior light control signal is an intensity signal.
3. An automatic exterior light control as in claim 1 wherein said exterior light control signal is a horizontal direction signal.
4. An automatic exterior light control as in claim 1 wherein said exterior light control signal is a vertical direction signal.

5. An automatic exterior light control, comprising:
an image array sensor, said image array sensor is configured to sense at least one illumination range and at least one other vehicle; and
a controller, said controller is configured to generate a continuously variable exterior light control signal as a function of said illumination range and said at least one other vehicle.
6. An automatic exterior light control as in claim 5 wherein said at least one illumination range is of a continuously variable headlight of a controlled vehicle.
7. An automatic exterior light control as in claim 6 wherein said headlight is a low beam headlight.
8. An automatic exterior light control as in claim 6 wherein said headlight is a high beam headlight.
9. An automatic exterior light control as in claim 5 wherein said at least one other vehicle is at least one oncoming vehicle.
10. An automatic exterior light control as in claim 5 wherein said at least one other vehicle is at least one leading vehicle.

11. An automatic exterior light control as in claim 5 wherein said imager is configured to sense said at least one illumination range as said at least one illumination range is being adjusted.
12. An automatic exterior light control as in claim 5 wherein said imager and said controller are configured to provide a positive feedback to insure that said at least one illumination range is as desired.
13. An automatic exterior light control as in claim 5 wherein said at least one sensed illumination range sensed is an upper vertical limit.
14. An automatic exterior light control as in claim 5 wherein said at least one sensed illumination range is an outer lateral limit.
15. An automatic exterior light control as in claim 5 wherein said at least one sensed illumination range is an intensity.
16. An automatic exterior light control, comprising:
 - an image array sensor, said image array sensor is configured to sense at least one illumination range; and
 - a controller, said controller is configured to generate a continuously variable exterior light control signal as a function of said illumination range.

17. An automatic exterior light control as in claim 16 wherein said at least one illumination range is of a continuously variable headlight of a controlled vehicle.
18. An automatic exterior light control as in claim 17 wherein said headlight is a low beam headlight.
19. An automatic exterior light control as in claim 17 wherein said headlight is a high beam headlight.
20. An automatic exterior light control as in claim 16 wherein said imager is configured to sense said at least one illumination range as said at least one illumination range is being adjusted.
21. An automatic exterior light control as in claim 16 wherein said imager and said controller are configured to provide a positive feedback to insure that said at least one illumination range is as desired.
22. An automatic exterior light control as in claim 16 wherein said at least one sensed illumination range sensed is an upper vertical limit.
23. An automatic exterior light control as in claim 16 wherein said at least one sensed illumination range is an outer lateral limit.

24. An automatic exterior light control as in claim 16 wherein said at least one sensed illumination range is an intensity.
25. An automatic exterior light control, comprising:
an image array sensor configured to detect at least one image, said image array sensor comprising an aim; and
a controller, said controller is configured to generate a continuously variable exterior light control signal, said controller is further configured to automatically calibrate said aim of said image array sensor relative to a controlled vehicle as a function of said at least one detected image.
26. An automatic exterior light control as in claim 25 wherein said controller automatically calibrates said aim of said image array sensor when the controlled vehicle is positioned in front of a target that can be seen by said image array sensor.
27. An automatic exterior light control as in claim 25 wherein said controller automatically calibrates said aim of said image array sensor by sensing changes in a relative position of street lamps in said at least one detected image.
28. An automatic exterior light control, comprising:
an image array sensor, said image array sensor comprising an array of pixel sensors;
and

a controller configured to generate an exterior light control signal, said controller is further configured to generate a rate of change of said exterior light control signal that is a function of the brightness of at least one detected light source.

29. An automatic exterior light control as in claim 28 wherein said exterior light control signal is an intensity signal.

30. An automatic exterior light control as in claim 28 wherein said exterior light control signal is a horizontal direction signal.

31. An automatic exterior light control as in claim 28 wherein said exterior light control signal is a vertical direction signal.

32. An automatic exterior light control, comprising:

an image array sensor, said image array sensor comprising an array of pixel sensors;
and

a controller configured to generate an exterior light control signal, said controller is further configured to generate a rate of change of said exterior light control signal that is not a function of a rate of change in distance to a detected light source.

33. An automatic exterior light control as in claim 32 wherein said exterior light control signal is an intensity signal.

34. An automatic exterior light control as in claim 32 wherein said exterior light control signal is a horizontal direction signal.

35. An automatic exterior light control as in claim 32 wherein said exterior light control signal is a vertical direction signal.